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JUNE, 1929

ENTOMOLOGICAL NEWS

Vol. XL No. 6

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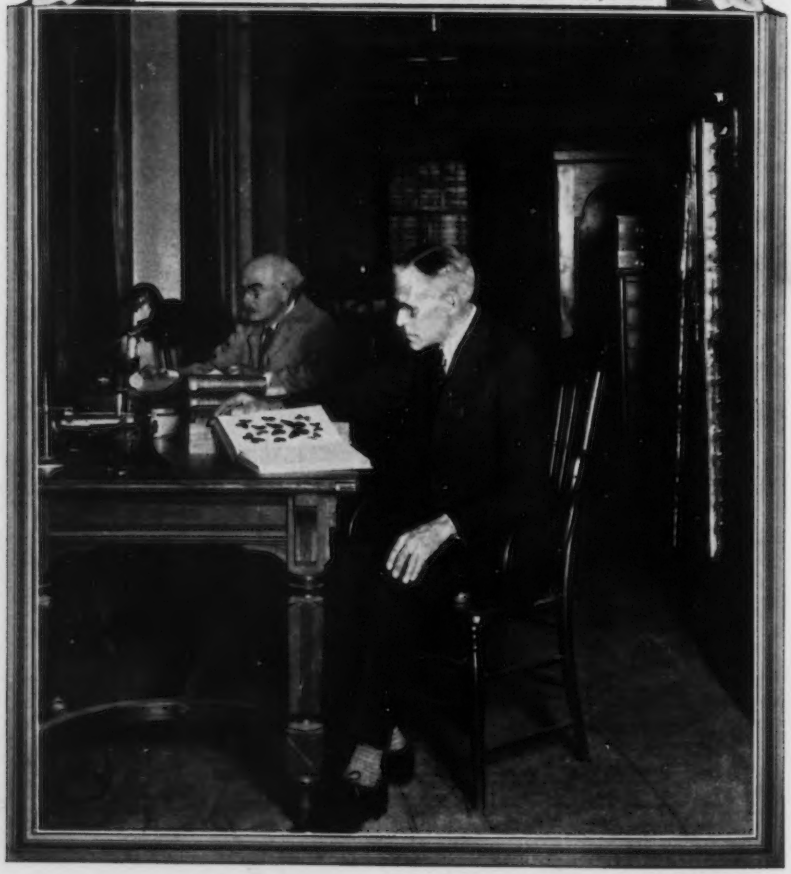
THE FIELD MUSEUM, CHICAGO, ILL.



~~EMIL LILJEBLAD~~

EMIL LILJEBLAD WILLIAM J. GERHARD

ENTOMOLOGICAL NEWS

VOL. XL. JUNE, 1929 No. 6

North American Institutions Featuring Lepidoptera.

V. The Field Museum, Chicago, Illinois.

By J. D. GUNDER, Pasadena, California.

(Plate VII.)

The World's Fair held at Chicago in 1893, brought together an unsurpassed amount of excellent display material suitable for museum purposes. There had been an era of artistic and industrial development on earth and competition and rivalry had led every nation to produce and exhibit its best. About this time a group of public-spirited citizens decided that at the close of the Exposition, the most important and valuable of these exhibits should remain in Chicago. Thus on August 21, 1893, was founded the original "Columbian Museum." A short time later the name was changed to the "Field Columbian Museum" and the most beautiful of the World's Fair buildings, the Palace of Arts in Jackson Park, was secured as a temporary home. This building was occupied for some twenty-seven years, however. In 1905 the museum limited its scope to the departments of Anthropology, Botany, Geology and Zoology and the name was finally and definitely designated as the Field Museum of Natural History in honor of Mr. Marshall Field, the Chicago merchant "prince" whose endowments made it possible.

The museum's new home (Plate VII) on the lake front in Grant Park, downtown Chicago, was opened to the public in 1921. The exterior is of Georgia white marble and is treated in monumental manner based on Greek architecture of the Ionic order. The interior of the building is very imposing and consists, in its general arrangement, of a great central hall or nave, flanked by transverse exhibition halls on both sides. The animal groups by the well known taxidermist and sculptor, Mr. Carl Akeley, are of special note. Mr. Stephen C. Simms is the present director, whose chief interest is popular education.

THE AMERICAN ENTOMOLOGICAL SOCIETY

As mentioned above, the museum's activities are divided among four departments or sciences; one of these is Zoology, of which Dr. W. H. Osgood is the curator. The division of insects (or entomology) comes under this section, and since 1901, the date of the founding of the division, Mr. William J. Gerhard has been in charge under the title of Assistant Curator. He is shown in the accompanying illustration with Mr. Emil Liljeblad, coleopterist, who has been with the museum a long while and whose speciality is the Mordellidae. Although Mr. Gerhard has worked with all insect orders for over thirty-three years, he prefers the Hemiptera and has a good private library upon the subject as well as a specialized collection. A "List of Mosquitoes of the Chicago Area" is among his writings. In 1898-99 he was sent on a colletcing trip into Bolivia. Many tropical butterflies were secured, but his health was somewhat impaired by fever. Mr. Gerhard was born January 3, 1877, in Berks County, Pennsylvania, is married and has one daughter.

The Division (or Department) of Entomology consists of a spacious office and one long workroom with windows along one side and with the insect cabinets placed in parallel rows down the center. It is estimated that there are some seventy-five thousand butterflies (and some moths) altogether, with four hundred and thirty-five specimens representing two hundred and fifty-one types and cotypes. Aside from the general museum collection which is separate, the following collections of note are represented and kept individually intact as originally received: the Arthur J. Snyder collection of North American Lepidoptera, purchased in 1904; the well known Herman Strecker collection of Lepidoptera of the world, purchased in 1908; the O. C. Poling collection (moths in part), donated in 1914, and the August Sallé colection, donated in 1917. The wooden cabinets, which for the most part hold these collections, will shortly be replaced by a modern all-steel equipment.

Chicago has an active entomological society which holds regular meetings at the Chicago Academy or elsewhere. It is unfor-

tunate that this society is not affiliated in some manner with the Field Museum. It is noticed that those local entomological organizations which are more closely in touch with their larger home institutions fare better in the long run than those continually working on an independent basis. This statement is suggested because the author was formerly a member of the Chicago Entomological Society when living in that city and he has the welfare of the old club in mind.

The Behavior of Macronychus glabratus Say (Coleo.: Helmidae).

By LUTHER S. WEST, Battle Creek College, Battle Creek, Mich.

Although an attempt to work out the life history of this species proved unsuccessful, it was my good fortune to observe certain features of adult behavior which have not apparently been hitherto recorded. These observations, though fragmentary, are presented at this time for the benefit of any who may be interested in the biology of aquatic Coleoptera.

Adult beetles were collected in May and early June from submerged and water-logged wood, boards seeming to be preferred over sunken branches by most individuals. The insects are evidently extremely adaptive, since they may be collected in almost equal numbers from slow flowing woods streams in which the water is colored with humous acids, and from bright, sunny, open water, where the current is swift. Sufficient, apparently, that they have partly decayed wood to which they may cling.

A considerable colony was kept under observation in a jar of natural water, placed near the window, and their behavior noted. Sticks of wood on which they had been taken were placed in the jar for them to crawl upon. At the posterior end of most individuals, as they climbed about beneath the surface, might be seen a tiny, silvery bubble of air. This is evidently a sort of reservoir which serves them for purposes of respiration while they are submerged. Each individual if observed long enough, could be seen to wander above the surface occasionally, where he always made much less satisfactory progress, for here his twelve claws seemed to stick exasperatingly into the wood,

and the individual would be obliged to stop and clean the fore-legs with each other, very much after the fashion of the house fly. This performance was also occasionally seen when the beetle was below the surface.

The not infrequent excursion above the surface is evidently necessary in order to secure a fresh supply of air and judging from the difficulty with which the beetles crawl when out of the water, would not be indulged in so frequently were it not required. It may be that in flowing water their reservoir is replenished more or less automatically, but this can hardly be true in certain almost stagnant waters, in which they are also found.

Food Habits. One finds the beetles frequently in little grooves or burrows which appear to have been excavated by the insects themselves. A dissection of several individuals and careful examination of the contents of the alimentary tract, never revealed anything more definite than a finely divided brown "frass" with an occasional hint of algae, like those growing on the surface of the wood. I now believe that the adult beetles, and evidently the larvae also, feed exclusively on the partly decayed, water-soaked wood to which they are given to clinging, passing it through the body along with whatever other nourishment it may contain.

Copulation. Copulation was observed several times during the month of June, both in nature and among the captured specimens. The performance was usually as follows. The male would wander about beneath the surface until he came upon a second individual which he would examine in a preliminary way by use of the fore-legs. He would perhaps pass on to a second or even a third before finding a suitable mate, those passed by being doubtless other males. The position of copulation is quite normal, the male being above and facing the same direction as the female, which provides transportation for both, while the male clings to the dorsum of the female with all six feet. The genitals seem to be brought into contact only intermittently, but the position is maintained for a variable length of time. One pair was observed to separate after five minutes while another pair remained together for over twenty.

Copulating pairs were isolated in small rearing cages, through

which flowing, natural water was caused to pass, and the beetles were provided with bits of wood on which to rest. No eggs were secured however by this method and since time did not permit further experimentation the project was finally abandoned. That the same pair may enter into copula more than once, at intervals widely separated is illustrated by the following note.

On June 9, a pair seen to be in copula was isolated in a small rearing cage, where, on daily examination they were found separate from each other until June 21. The pair was found to be in copula again on that date and was left undisturbed. On June 23, when the cage was next examined, the pair was found still in mating position. It is barely possible that union may have continued for forty-eight hours.

Hibernation: *Mention of the larva.* One point was clearly established and that is the fact that the *adults* overwinter. A colony of several, collected in July, lived through in rearing cages, where the water temperature approximated that of outside conditions, and remained active during the following summer, one after another dying off as the season came to an end. Two were still alive when the work was abandoned in October. They were, however, exceedingly sluggish and it is not to be supposed that they would have lived appreciably longer.

The larva usually associated with this species occurs in little crevices in the wood, sometimes more or less covered with surface debris. This larva is subtriangular in cross-section and seems to possess the ability to burrow short distances into the softer parts of the wood. Bearing in mind the life history of *Macronychus quadrituberculatus* Bull., as reported by Perez ('63)* we might expect that the pupae, as is the case with the European species, may ultimately be located within tiny burrows in the wood itself. I am not willing to commit myself as to the identity of this larva, since *Macronychus glabratus* is not the only species found in such situations. A more nearly cylindrical larva, like that of *Stenelmis bicarinatus* Lec. is also sometimes found associated with the adult *Macronychus.*

*Perez, Arcas 1863. Historie des metamorphores du *Macronychus quadrituberculatus* et de son parasite. Ann. Soc. ent. de France. (4e ser) T. 3. 621-636, pl. 14. 21 figs.

The Grapevine Sawfly (Hym.: Tenthredinidae).[1]

By WILLIAM R. HORSFALL, Department of Entomology,
University of Arkansas.

(Plate VIII.)

The grapevine sawfly, *Erythraspides pygmaeus* (Say)[2], was listed as a pest of grape by Harris[3] in his Treatise on Insects. It is also included among the grape insects discussed in the popular manuals on fruit insects by Saunders[4] and by Slingerland and Crosby[5]. It occurs in Arkansas as a pest of porch arbors, but there is no record of its attacking grapes in vineyards in this state. The only host upon which it has been collected here is the sweet winter grape, *Vitis cinerea* Engel[6]. This species, so far as I know, is grown only as an arbor grape.

The following notes on the habits and life history of the grapevine sawfly were secured at Fayetteville, Arkansas, during the summer of 1928[7]. No attempt at completeness was made, since the studies were carried on as an incidental part of the insectary work with more important pests.

The adult sawflies show the greatest activity in the brightest part of the day,—i. e., between the hours of 10:00 a. m. and 2:00 p. m., when they may be seen flying swiftly around the arbor. The numbers vary, depending on the periods of greatest emergence. Some may be found all of the time in midsummer. The female selects a small tender leaf, preferably about an inch across, for oviposition. When she first alights on the leaf she is very restless and runs about over it until a place for oviposition is selected. The under surface is always chosen, and she locates a place for the egg by feeling about with her abdomen. She gradually becomes more quiet, and then inserts her

[1] Research Paper No. 113, Journal Series, University of Arkansas.
[2] Determined by Wm. Middleton.
[3] Harris, T. W. 1852. Insects injurious to vegetation, pp. 522-523.
[4] Saunders, W. Ins. Inj. to Fruit, p. 185.
[5] Slingerland, M. V. and Crosby, C. R. Manual of Fruit Insects, pp. 417-418.
[6] Determined by Dr. D. M. Moore, Professor of Botany, University of Arkansas.
[7] This study was carried on at the suggestion of Mr. Dwight Isely of the Department of Entomology. Also, I wish to thank Mr. David G. Hall for assistance in preparing the drawings and for the photograph of the feeding larvae.

ovipositor alongside a vein and deposits an egg. The eggs are laid singly along the lateral margins of the veins, thus giving the veins a knotty appearance. They are held in place by strands of fiber which surround the veins, and are covered by the floccose material on the under surface of the leaves. The leaf vein in which the egg is inserted is killed at the point of insertion.

Larvae of the first two instars feed individually, making small holes between the veins of the leaf upon which they hatched or upon adjacent ones. Most of the feeding is toward the edge of the under side of the leaf, causing the margins to curl downward. In the latter instars the larvae tend to be gregarious. They start feeding at the edge of a leaf and gradually move backward toward the petiole, leaving very little more than the petiole and midrib. When one leaf has been devoured, they migrate to another.

In the last instar the larva does not feed. The male has a total of five instars and the female six. As soon as it has hardened after molting, it drops to the ground and makes an elliptical cell for pupation about an inch below the surface. The walls of this cell or cocoon are quite firm so that it can easily be removed from the soil, although it appears to be made largely of sand or earth.

Duration of Stages.

Records on the duration of stages were taken in the period from July 10 to August 9, 1928, when the daily mean temperature in the insectary ranged from 73-82½°F.

The incubation period required from 3 to 5 days, with an average of 3.9, based on records of 71 eggs.

The duration of total larval feeding period of the male was from 8 to 16 days, with an average of 11.35, based on records of 18 larvae. The duration of the total larval feeding period of the female was from 9 to 20 days with an average of 14.30 days, based on records of 20 larvae.

The average duration of the different larval stages in days was as follows: first stage, 1.98, based on 93 larvae; second stage, 1.57, 49 larvae; third stage, 1.97, 49 larvae; fourth stage, 2.88, 81 larvae; fifth stage, 2.30 for females, 40 larvae,

and 2.95 for the non-feeding males, 18 larvae; sixth stage, females only, 3.60, based on 20 larvae.

The total period spent under ground (the last larval period and pupa) was from 11 to 14 days, with an average of 11.75. Of the time spent in the ground, from 7 to 9 days were in the last larval instar, with an average of 7.50 days; and from 4 to 5 days were spent as pupae with an average of 4.19 days, based on records of 16 individuals.

All of the stages were apparently the same in the case of the male and female, with the exception of the larval feeding period. As above stated, the male has five larval feeding instars, and the female has six.

The preoviposition period is very short, being from 2 to 3 days, with an average of 2.5, based on records of 30 females. None of the females lived over six days after emerging, and some died as early as the fourth day.

Description of Stages.

Egg.—Length, .95 mm.; greatest diameter .65 mm. General shape ovoid, one end tapering more rapidly than the other. Color whitish translucent. The outer membrane is pliable, rather tough, and elastic.

The width in millimeters of the head capsule of the different larval instars is as follows: first instar, .35-.37; second instar, .60; third instar, .90; fourth instar, 1.15 to 1.20; fifth instar, 1.40 to 1.45; sixth instar (female only), 1.65.

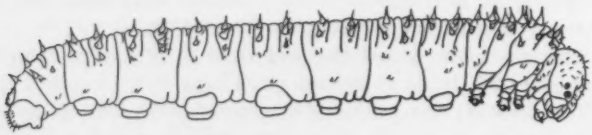
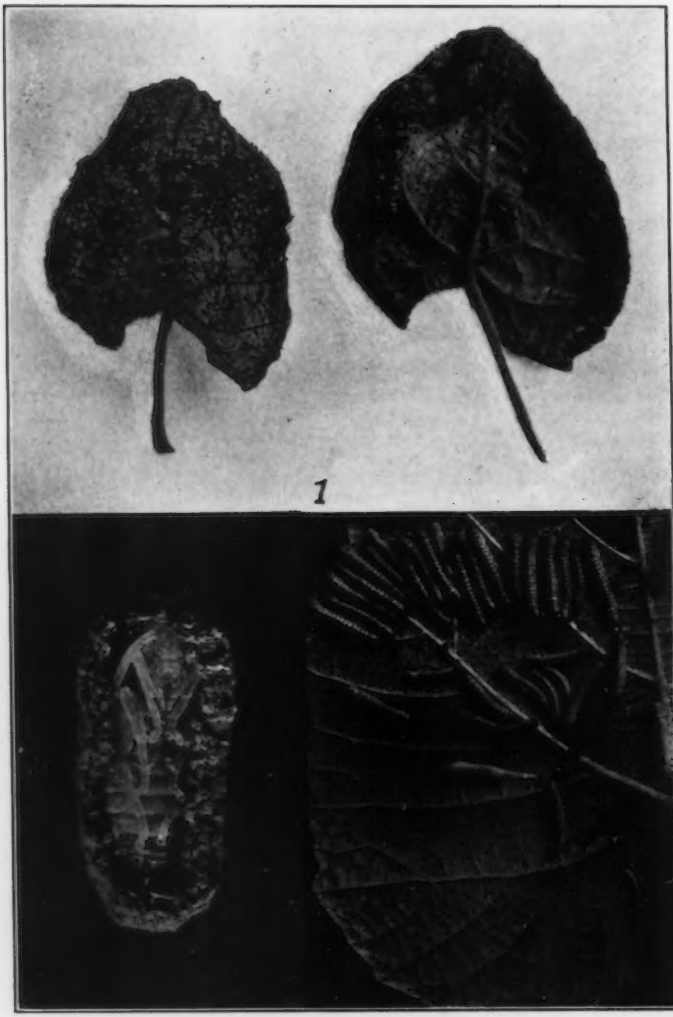


Figure 1. Larva of last feeding instar of grapevine sawfly.

Larva, last feeding instar.—Length, 12-15 mm.; width of head capsule, 1.40 to 1.45 mm. Head black, shiny, microscopically setiferous, smaller than thorax; ocellaria black; tips of mandibles and clypeus brown; glossae and paraglossae not fused, shorter than palpi; glossae without opening in center. Body greenish yellow, subcylindrical, slender, tapering slightly caudad; larvapods on all but first and ninth abdominal seg-



THE GRAPE-VINE SAWFLY.—HORSFALL.

ments. Spines, large, black, conical, not bifurcate, spinose, 1 seta at base of each spine; spines arranged typically in two transverse rows across each segment; third abdominal segment with five annulae, with three pairs of spines on second and fourth; spiracles black margined; tarsal claws brown; dorsal plate on tenth abdominal segment black. (See fig. 1.)

Larva of the last instar.—Length after molting 9 to 11 mm. Most apparent difference between this and preceding instars: head whitish yellow; body lemon yellow; spines absent. Only parts remaining dark colored are the black ocellaria and the brown tips of the mandibles and larvapods. The glossae and paraglossae are fused, with an opening in the center. The mandibles are non-functional and do not meet. Legs and larvapods functional until after cell is made.

After forming the pupal cell the larva gradually shortens and goes into the typical prepupal stage.

Pupa.—Length, 5 to 7 mm.; greatest breadth, 2.5 mm. Color, pale yellow. (See fig. 2.)

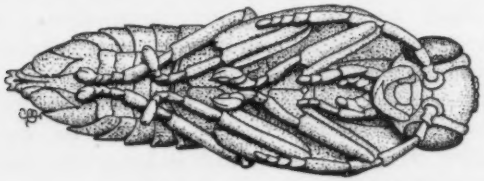


Figure 2. Pupa of grapevine sawfly.

Adult.—The original description of the adult, as *Tenthredo pygmaeus* by Say[8], is as follows:

"Black; thorax rufus before; feet white. Inhabits United States.

"Body polished; hypostoma obscure whitish; thorax anterior segment rufus, collar dusty; wings dusky; feet white; thighs blackish in the middle behind; posterior tibiae and tarsi black.

"Length ♂ one-fifth of an inch, ♀ rather more."

Explanation of Plate VIII.

Grapevine sawfly. (1) Feeding injury by larvae of first instar, showing characteristic curling of leaves; (2) pupa in pupal cell; (3) large larvae feeding gregariously.

[8] Complete writings of Thomas Say edited by J. L. LeConte, 1859, p. 213.

The Cicindelidae (Coleoptera) at Kartabo, Bartica District, British Guiana.

By SAMUEL H. WILLIAMS, University of Pittsburgh.

In point of individuals, the tiger beetles are numerous at Kartabo. Many of the woodland forms frequent the plants and are seldom taken on the ground. This may be accounted for by the fact that the density of the jungle roof prevents the admission of much light to the substratum while many of the leaves are illuminated by the rays of sunlight that trickle through the mass of foliage.

Of the eight species of Cicindelidae found at Kartabo, several are active at night. Among these are *Odontochila luridipes* Dejean, *O. cayennensis* Fab., *Tetracha affinis* Dejean, and *Aniara sepulchralis* Fab. I have also taken *Tetracha sobrina* subspecies *globosicollis* Horn, along the trails of the Coushi ants at night. In fact, this species inhabits these trails even when there are ant processions in both directions although no evidence of interrelationships could be detected.

Of all the species mentioned in this list *T. sobrina* subsp. *globosciollis* Horn, seems to be least common. Its resemblance to *T. affinis* caused me to overlook it for a time and it was placed among the latter species in the collection. However, on later examination, it proved to be a different form and I was unable to properly place it. While in Germany I submitted it to Dr. Horn at the Entomologisches Museum in Berlin-Dahlem and he informed me of its identity. Dr. Horn stated that he had originally described the species from male specimens and the females from Kartabo were the first he had received.

Cicindela argentata Fab., was taken from the tops of giant Mora trees which were examined immediately after they had fallen and remains of this species were also found in epiphytic plants more than one hundred feet above the ground.

The following list represents the Cicindelidae in the collection of the New York Zoological Society and in my personal collection. Through the kindness of Dr. William Beebe I was permitted to use the Society's collection. Specimens of all

species were found in both collections and all were taken in the region of the Tropical Research Station operated for several years by the New York Zoological Society and later by the University of Pittsburgh. Kartabo, where the Station is located, is situated on the southern shore of the Cuyuni River near its junction with the Mazaruni River, more than sixty miles in the jungle.

The Zoological Society's collection was made at random and some specimens date back to 1921, while those in my personal collection were taken from June to October, 1925, and from July to October, 1927. It is interesting to note that I collected all species on both occasions. The list of species is as follows:

ODONTOCHILA *lacordairei* Gory. Ann. de la Soc. de France II, 1833, p. 172.

ODONTOCHILA MARGINEGUTTATA Dejean. "Species general des Coleopteres de la collection de M. le Comte Dejean" Paris 1825-31, page 24.

ODONTOCHILA LURIDIPES Dejean. 1. c. page 23.

ODONTOCHILA CAYENNENSIS Fab. Mantissa Insectorum I, 1787, page 187.

CICINDELA ARGENTATA Fab. Systema Eleutheratorium I, 1801, page 242.

ANIARA SEPULCHRALIS Fab. 1. c. page 233.

TETRACHA AFFINIS Dejean. 1. c. page 12.

TETRACHA SOBRINA subspecies GLOBOSICOLLIS Horn. Archiv für Naturgeschicte LXXIX, A11, 1913, page 5.

Of the above species *O. cayennensis* is the commonest.

The Hibernation of Uhleriola floralis Uhl. (Heteropt.: Lygaeidae).

During a recent collecting trip, March 23, to the foothills west of Fort Collins, several thousand lygaeids, *Uhleriola floralis* Uhl., were observed in hibernation. The insects were found massed together in three large clusters beneath a large rock on the south exposure of a sheltered bank. The clusters were several inches in diameter. These Hemiptera, formerly placed in the genus *Rhyparochromus*, are abundant during the summer months in certain localities in Colorado. I have observed them on a number of occasions in hibernation during the winter months, but never in such large numbers.

LESLIE B. DANIELS,
Colorado Agricultural College, Fort Collins, Colorado.

What Constitutes a Good Original Description.

By J. D. GUNDER, Pasadena, California.

(Plate IX.)

I have written to a number of well known entomologists around the country, each of whom specializes in a particular or different order of insects and who, for the most part, have done a great deal of descriptive work.[1] I have tried to get their general ideas upon the question of, "What constitutes a good original description?" This subject, as put, was very broad, I admit, and left room for plenty of comment and suggestion. In the latter portion of this article, I have ventured to quote from a number of the replies received and from other sources of information. It was most interesting to note that practically everyone considered their own original descriptions "about as unideal as the average." This unsophisticated mental attitude and modesty of conclusion on the part of American workers is a good sign. It shows an open mind, susceptible of individual improvement, if improvement can be made, and yet does not imply an urgent need of such, but rather infers a broad hope of future advancement in the art of letting the other fellow know just what the new "bug" is like.

The ideal original description will never be one which is wholly in script, for it is next to impossible to convey to the majority or even to some specicalists, the desired or paratypical mental reproduction of a complex insect. Illustration is needed in conjunction with the written word, as a help toward a more clear and *rapid* communication of details, especially photographic reproduction or comprehensible drawings. This statement is not offered as a new suggestion for it has been discussed many, many times before; but each time, seemingly, there is more weight in its favor. Of course circumstances will decide as to when illustration or part illustration is advisable (see text elsewhere); but just the same, it must be borne in mind by all entomological authors that we are now living in what may be termed the beginning of a pictorializing era. Peo-

[1] In the insect orders of Coleoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Neuroptera, Odonata, Orthoptera, etc.

WHEN WRITING

ORIGINAL DESCRIPTIONS

of the more commonly studied insects belonging to the Orders Coleoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Neuroptera, Odonata, Orthoptera, etc.

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B. To write the editor a *legible* manuscript.
C. To ask for author's separates and later *distribute* them.
D. To correct proofs *carefully* and return same promptly.
E. To join a *bracketed* sub-title to paper's title.
F. To affix your *address* as well as name under title.
G. To Latinize new names according to the *Code.*
H. To follow 'new' or 'nov' with a *definable* classification term.
I. To *illustrate* more often by photographs or drawings.
J. To describe *fully* at first proposal of any new name.
K. To describe *comparatively,* specifically, coördinately and less generically.
L. To *note* primary sexual differences as well as secondary.
M. To *avoid* informal 'common names' in formal descriptions.
N. To use new-born structure terms *elsewhere* first.
O. To abbreviate *less,* especially when misunderstanding may result.
P. To *standardize* color names according to Ridgway.
Q. To *add* authorship when mentioning other named insects.
R. To assemble all 'data' or details as *a unit* following description.
S. To mention probable check list *position* of new name.
T. To designate holotype *first,* next allotype, finally paratypes.
U. To always give *sexes* of types, if known.
V. To give *accurate* type measurements, plus known averages.
W. To invariably state *explicit* type locality with *definite* dates.
X. To *mention* original collector's name.
Y. To specify *disposition* of types and paratypes.
Z. To *include,* as known, food plant, host, life history notes, etc.
ETC. To read over your *old* descriptions in order to improve your *new* ones.

J. D. G.—1929

WHAT CONSTITUTES A GOOD ORIGINAL DESCRIPTION.—GUNDER.

ple prefer to understand *via the graphic method.* This is exemplified by the movies, pictorial advertising, visible radio, picture telegraphy, etc. This modernistic manner of mental perception is undoubtedly quicker and more satisfactory. It is time, principally, and space which count nowadays and the busy specialist has come to consider superfluity of text as stupid, even unethical. He knows that the excess text matter now used in some wordy description would have been better replaced by a neat halftone or figure of some kind. One entomologist answered my query, in similarity with others, thus: "When I see new descriptions with good illustrations, I am tickled; I know just where I am at. To me, a picture saves reading half the text, which I can read anytime later, if I have to." One little angle of the situation which every describer of a new insect should think over and bear in mind is that—*it used to be* the reader who was considered stupid, if he could not understand, but now, it is apt to be the dilatory author who has to share this reputation, if his descriptions are not made comprehensible when known latter day devices to make them so are at hand.

I have come to the conclusion that doubtful descriptions may be laid to the doors of three kinds of authors, as follows:

First: To those energetic beginners who haven't assembled much material as yet and who are unfortunate in being near antiquated collections which are in charge of "very busy" superiors working in other groups. There is plenty of hope for this coming generation and if they can only be encouraged to keep their specimens until they have a good collection, they will by that time know the right parties who will gladly help them. By a good collection, I mean an ample *specialized* collection, nothing less. A mixed general collection in any order gets the student no where, in this age of restricted endeavor.

Second: To those well known "Jacks of all Orders" who publish much at home as well as abroad and who are the bane of a specialist's life. No hope for these old boys—only a superficial reputation. They keep the abstractors busy as well as the synonymical check listers.

Third: To those "forgetful describers", who like myself,

unintentionally leave out something of importance now and then. Everybody is in this class and there are no exceptions, if that is any consolation. Further, no excuse can be offered, for there is none. We only improve by recognizing our own faults. Let us try to know them, therefore!

On the accompanying plate, I have attempted to chart out a few important details which if disregarded constitute incomplete original description. There are undoubtedly many points not mentioned. The late Dr. H. G. Dyar recently wrote to me, "It is impossible to draw up a model description. That would do more harm than good. A poor student will muddle his description regardless of standards and an astute student will only be handicapped by a set form." Therefore, I believe that a recitation of a number of definite points to be observed by an author is better than attempting to work out a model or to write generalizations such as are usually offered.

I wish to thank the several specialists whose opinions, in brief, follow. Would that I had more space to devote to these.

A. Use standard American entomological journals. "Academically, it is better, of course, that American insects be published in American entomological publications. — C. W. STILES." The use of foreign journals spells unavailability to the average reader. "Avoid publishing new descriptions in semi-private and one-man-edited sheets because the validity of these so-called publications is frowned upon by the Commission and new names may be rejected later as considered unpublished.— C. W. STILES." Also it is better to publish in pure entomological journals in preference to those mixed bulletins featuring in part botany, astronomy, etc. These journals are too broad in scope to *always* reach the desired clientele of interested specialists or entomological libraries. Also for your protection, use only those journals which state "date of mailing." Prefer standard journals like the Entomological News, Canadian Entomologist and the Pan-Pacific Entomologist; they will be only too glad to enlarge and take care of all good text matter. This last statement is suggested for independent workers.

B. Write your editor a legible manuscript. "Editors, as well as printers, waste valuable time trying to decipher poor

long-hand, and in correcting errors in spelling and grammar. We wonder sometimes if authors can read their own sentences. The use of a typewriter is recommended.—P. P. CALVERT."

C. Ask for author's "separates" and later distribute them. Use "extras" and save wear and tear on the bound volume. Don't let your friends have to ask for these things! You get them free, so return the courtesy.

D. Correct proofs carefully and return same promptly. Many errors have been avoided by proof reading. Never pigeonhole a proof which is marked—"return at once."

E. Join a bracketed subtitle to paper's title. For example—"New Nymphalidae (Lepid.: Rhopalocera)" or "New Butterflies (Lepid.: Nymphalidae)"; Nymphalidae being the family name. "It is very important that cataloguers and abstractors of entomological papers know the families to which the article refers; merely Heterocera or Rhopalocera, for example, is not enough.—P. P. CALVERT." This is a phase of title construction which authors frequently overlook. Every descriptive heading of importance should be bracketed in order to make yearly indexing more convenient and accurate.

F. Affix your address as well as your name under title. Sometimes readers wish to get in touch with authors and if the address is missing, the task is made more difficult. Anonymous articles or those signed with initials or by a "nom de plume" should never be submitted, much less accepted.

G. Latinize new names according to the Code. It is not good style any longer to write descriptions wholly or in part in Latin; however, it is better for science that Latin names, especially Latin terminations remain in use. "Write or print new names in bold face type.—E. T. CRESSON, JR."

H. Follow "new" or "nov" with a definable classification term. Forget the word "variety"; never use it in connection with new or nov. (see classification scale in November, 1927, Ent. News). Remember that "a form" is always found with, or is a part of, a species or a race; therefore to refer collectively to several species or to several races as "those forms" is bad entomological grammar, because it is the same as calling either

species or race, a form. I noticed in the December issue of a journal recently that the word "form" was used eighty-two times by actual count and with various and different meanings! Moral: Don't abuse a good classification term by using it promiscuously and indiscriminately. Call a horse, a horse.

I. Illustrate more often by photographs or drawings. In all orders there are certain families which are considered difficult of identification. In Lepidoptera, for example, the genus *Euphydryas* of the Family *Nymphalidae* especially requires illustration at time of original description; otherwise the validity of the names "lie on ice" indefinitely, which is a selfish procedure and brands the author as a doubtful entomologist. It holds the name for him, but what a taxonomic farce! Isn't it about time to individually improve this situation? "The value of new names in original description will undoubtedly be increased if authors will accompany their text with phenomenally accurate illustrations or figures. Careful and accurately labeled illustrations are an enormous aid.—L. O. HOWARD." "The object of description is to convey by means of words or illustration, a direct picture of the object.—S. A. ROHWER." "The description should stand as a substitute for the object itself . . . . . this ideal may be regarded as impossible on the basis of words alone. There remains but one way by which this ideal may be approached, and that is by means of some sort of pictorial or graphic representation.—G. F. FERRIS." "My idea is that a new species should be accompanied by . . . . figures of at least the parts used for diagnosis.—CHAS. W. LENG." "I believe that original descriptions should *always* be accompanied by figures illustrating the principal characters.—E. M. WALKER." "A good figure is better than pages of description.—W. J. HOLLAND."

J. Describe fully at first proposal of any new name. Today in Europe they are still troubled with authors who write all about a summer's vacation and some where in their sentences stick in a new name with a line or two of text, then *later* publish an illustration and perhaps a *real* description of it. Fortunately, we have no such work (or lack of work) in America. However, we do have some brief descriptions which are

essentially diagnostic and which require the reader to have a key or a full description of the related species to know what the new one may be like. I believe, as a general policy, unless the specimens described represent a race or a form, that this character of description should be discouraged. There should be a happy medium. "The first essential for a proper description, I think, is that it should be complete within itself, so far as specific characters go.—A. N. CAUDELL." "Personally, I like to begin a description with a few of the most striking or salient features . . . . following these general statements with a systematic and pretty complete description of the insect . . . . (avoiding generic characters as much as possible) . . . . following this with a comparative review of neighboring species . . . . In this way the difficulty of a purely differential description is avoided.—H. T. FERNALD." "Even the absence of certain peculiarities should be expressly mentioned.—J. BEQUAERT." "I have come across some descriptions which lack everything but words.—E. T. CRESSON, JR."

K. Describe comparatively, specifically, coordinately and less generically. "A purely differential description, comparing one species to another, is useless unless you *have* the other species and *know* it to be the other.—H. T. FERNALD." "Careful comparison with the nearest allied species, I consider of paramount importance.—E. M. WALKER." "Clearness and conciseness are the first requisites of a good description.—J. G. NEEDHAM." "In the presentation of a specific classification, all data should be arranged in some logical and orderly fashion.—G. F. FERRIS."

L. Note primary sexual differences as well as secondary. "Pay careful attention to secondary sexual characters, if such exist . . . . primary characters are often very helpful.—H. C. FALL." "The genitalia may be all important in a final diagnosis.—E. M. WALKER."

M. Avoid informal "common names" of insects in a formal description. Common names are coined only for the use of laymen and tyros.

N. Use new-born structural terms elsewhere first. New

terms, which are original with the author or which have not been previously defined, should not be used in original description.

O. Abbreviate less; especially when misunderstanding may result. For instance, a type locality given as—"Y. N. P." may mean Yosemite National Park in California or Yellowstone National Park in Wyoming. "I also wish to protest aginst the use of abbreviations, which tend to become a serious menace.—J. BEQUAERT."

P. Standardize color names according to Ridgway. To say yellow, for example, is indefinite because yellow is a fundamental color and there are many hues for each of the six distinct colors of the solar spectrum. Dr. Robert Ridgway of the United States National Museum is undoubtedly one of the best authorities on color nomenclature. "Personally I have used Ridgway's latest since it has appeared from the press.—J. A. G. REHN."

Q. Add authorship when mentioning other named insects. To add authorship following a name is to save the reader's time in looking it up; besides it is according to the Code and also an ethical courtesy due.

R. Assemble all "data" or details as a unit following description. I have in mind a paper containing a series of descriptions in which the disposition of the type material was hidden in adjoining text and quite separate from the descriptions themselves. Considerable time was wasted in trying to find this important information. "In the notes following the description and not in the body of the description itself, the type locality . . . . etc., should be given.—W. S. BLATCHLEY."

S. Mention probable "check list" position of new name. Makers of catalogues and check lists would probably appreciate any references, right or wrong, in this regard. By expressing your idea first, it would safeguard your knowledge or intention as to where the name should be inserted. "It is helpful to state the probable relationship in the genus. — J. A. COMSTOCK."

T. Designate holotype, next allotype, finally paratypes.

"All type material should be carefully listed.— J. M. ALDRICH." "A series (if possible) of specimens should be available from which a typical male should be designated, the holotype, and a typical female, the allotype. If possible, a good series of specimens should be set aside and consecutively numbered—Paratype 1, 2, 3, etc.—J. A. COMSTOCK."

U. Always give sexes of types, if known. Older collectors evidently could not determine sex or thought sex reference unnecessary, but this is hardly an excuse in regard to modern research. "Some descriptions lack a full account of the types. —J. M. ALDRICH."

V. Give accurate type measurements, plus known averages. "Measurements may be misleading, if only the extremes are given. Either the mean of a number of measurements of an average individual should be given, as well as the extremes I know I have not followed this rule consistently myself, but I believe it should be adopted.—E. M. WALKER." "List a definite set of comparative dimensions instead of merely 'broader than long' or 'third joint longer than second'. A micrometer grating in a low power microscope eye-piece will give fixed and definite standards, so that length and breadth can be stated as '25 to 21' or 'third joint to second, 23 to 17'.—J. A. G. REHN."

W. Invariably state explicit type locality with definite dates. Merely giving the month of capture without the date in that month or year is unsatisfactory information in the extreme. Field collectors, please take notice! "It is needless to emphasize the importance of exact locality data . . . . particularly in mountainous regions.—E. M. WALKER." "I have found the average entomologist to be rather weak on geography . . . . For a clear comprehension of distributional and evolutionary problems, a vigorous effort should be made to include all available locality data.—J. A. G. REHN."

X. Mention original collector's name. "The collector's name should be included as a matter of polite recognition and source of material information to others.—J. A. COMSTOCK."

Y. Specify disposition of types and paratypes. "The disposition of type material is very necessary.—A. N. CAUDELL."

"The real basis of conception, namely the holotype, must be consulted anew from time to time.—W. L. McAtee."

Z. Include, as known, food plant, host, life history, notes, etc. "The addition of biological notes and general remarks about the species is often helpful.—A. N. Caudell." "All good descriptions should include distributional notes, seasonal occurrence, habits, etc., where known.—J. A. G. Rehn."

In conclusion the writer understands, of course, that the above twenty-six suggestions try to cover a very broad entomological field. They need not necessarily be applicable to other fields, for in other groups of organisms different systems of description and publication may be required. Corrections, comments and discussion upon the subject of "What constitutes a good original description" will be welcomed.

Correction.

In an article, entitled "The development and present status of entomological courses in American colleges and universities", published in the December, 1928 issue of the Journal of Economic Entomology, there occurred a number of errors which have been called to the author's attention.

The University of Pennsylvania was omitted entirely from the list, which institution should have received credit for four graduate and two undergraduate courses. The University of Minnesota should be credited with eighteen courses, of which six are in apiculture. The staff at Minnesota numbers 13. To the list of Canadian institutions should be added the University of Saskatchewan, University of Alberta, University of Manitoba, University of Western Ontario, and Manitoba Agricultural College.

The main purpose in publishing this paper was to serve as an introduction to two succeeding studies, nevertheless the omissions are regretted, and thanks are extended to those kind enough to write regarding them. A more complete paper on this subject was published by Professor Roger C. Smith, in the Kansas State Agricultural College Bulletin, Volume 12, Number 1. The total institutions covered in this publication number 153. The above mentioned embraces only ninety-nine, fifteen of which are not listed in the latter, bringing the grand total to 168. By putting the information of the two papers together a good idea of the present status and development can be obtained.—Paul Knight, University of Maryland.

New Species and Varieties of Platytylellus from North America (Hemiptera: Miridae).*

By HARRY H. KNIGHT, Ames, Iowa.

Platytylellus nigripilus n. sp.

Runs in my key (Hem. Conn., 1923, p. 552) to the couplet with *borealis* Kngt., but differs from this species in color and pubescence; distinguished from *insignis* Say by the shorter second antennal segment which is barely equal (♂) or not equal (♀) to basal width of pronotum; also differs from both species in having stiff black hairs on the red areas of collar and pronotal disk. Differs from *eremicola* n. sp. in that antennal segment I is equal to width of vertex, and segment II is likewise longer.

♂. Length 6.2 mm., width 2.1 mm. Head: width 1.09 mm., vertex .58 mm. Rostrum, length 1.9 mm., only attaining base of hind coxae. Antennae: segment I, length .59 mm.; II, 1.83 mm.; III, (broken). Pronotum: length 1.05 mm., width at base 1.83 mm.

Dull black, base of head, collar, median line of disk, propleura, scutellum except basal angles, and venter except genital and eighth segment, red. Clothed with pale yellowish pubescence, dusky to black above, the dorsum interspersed with short, stiff black hairs, more noticeable on the collar and red median line of pronotal disk.

♀. Length 6.6 mm., width 2.7 mm. Head: width 1.18 mm., vertex .65 mm. Antennae: segment I, length .65 mm.; II, 1.95 mm.; III, 1.36 mm.; IV, .84 mm. Pronotum: length 1.24 mm., width at base 2.2 mm. Very similar in pubescence and coloration.

Holotype: ♂ August 14, 1917, Cranberry Lake, NEW YORK (C. J. Drake); author's collection. *Allotype*: July 21, 1920, type locality (C. J. Drake). *Paratypes*: ♀ July 7, base Mt. Washington, NEW HAMPSHIRE. 2♀, Aug. 17, Aug. 25, Slave Lake, ALBERTA (Owen Bryant).

Platytylellus eremicola n. sp.

Distinguished by the short antennae; segment I not equal to width of vertex, segment II much shorter than basal width of pronotum.

♂. Length 5.8 mm., width 2.4 mm. Head: width 1.18 mm., vertex .64 mm. Rostrum, length 2.1 mm., reaching to middle of hind coxae. Antennae: segment I, length .55 mm.; II, 1.72

* Contribution from the Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

mm.; III, 1.03 mm.; IV, .63 mm. Pronotum: length 1.14 mm., width at base 1.95 mm.

Dull black, collum, median point at base of vertex and at basal angles of eyes, collar above, dorsal half of propleura, median line of pronotal disk, scutellum except more or less on basal angles, dull red; sometimes with the collar and propleura median line of pronotal disk, scutellum except more or less on basal angles, dull red; sometimes with the collar and propleura black, and more rarely with median line of disk uniformly black. Clothed with fine, pale to black pubescence, interspersed with short stiff black hairs, more prominent on lateral margins of pronotum and hemelytra; pubescence pale over the red areas; surface coated with fine, pale to reddish, granular excretions.

♀. Length 6.1 mm., width 2.6 mm. Head: width 1.18 mm., vertex .67 mm. Antennae: segment I, length .62 mm,; II, 1.67 mm.; III, 1 mm.; IV, .65 mm. Pronotum: length 1.23 mm., width at base 2.1 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂ August 7, 1927, Shoshone National Forest, WYOMING (H. H. Knight); author's collection. *Allotype*: same data as the type. *Paratypes*: 12 ♂ ♀, taken with the types by sweeping mixed herbaceous growth in an open glade. WYOMING—8 ♂ ♀ July 20-25, 1920, Yellowstone National Park (A. A. Nichol). COLORADO— ♂ Aug. 12, 1925, Wolf Creek Pass (H. H. Knight). ♂ Aug. 1, Lizzard Hill; ♂ Aug. 1, 1900, Rices Spur (E. D. Ball). ♀ July 15, Ute Creek (L. Bruner). 14 ♂ ♀, "COLO." with various numbers (C. F. Baker). ♂ "COL." (Uhler coll.), probably represents the chirotype of Uhler's (1872) manuscript name *cremicola* (U. S. N. M.). IDAHO— ♂ July 11, 1926, Big Meadows; ♂ July 10, 1926, Stanley (R. W. Haegele). MONTANA— ♂ ♀ July 14, 1919, alt. 7500 ft., Gallatin Co. NEW MEXICO— ♀ Aug. 15, 1900, Beaulah (T. D. A. Cockerell). ALBERTA— ♂ July 23, 1928, alt. 6000 ft., Laggan; ♂ ♀ June 26, 1928, Kannanaskis (Owen Bryant). ♂ June 21, 1919, Edmonton (F. S.Carr).

This is the species to which Uhler gave the manuscript name *cremicola* but failed to publish a description. It has been taken chiefly at the higher altitudes in the Rocky Mountain region.

Platytylellus concisus n. sp.

Runs to *nigricollis* Reut. in my key (Hem. Conn., 1923, p. 551) in that antennal segment I is equal to twice the lateral width of an eye, but differs in the type of pubescence and col-

oration. Differs from *eremicola* n. sp. in the relatiyely longer antennal segments; segment II equal to basal width of the pronotum.

♀. Length 6.5 mm., width 2.5 mm. Head: width 1.33 mm., vertex .74 mm. Rostrum, length 2.3 mm., reaching to middle of hind coxae. Antennae: segment I, length .70 mm.; II, 2.03 mm.; III, 1.48 mm.; IV, 1.02 mm. Pronotum: length 1.2 mm., width at base 2.04 mm.

Dull black, base of head, margins of vertex bordering eyes, genae, gula, basal half of bucculae, collar, xyphus, propleura, ray between calli and extending to middle of disk, narrow median line of scutellum, sides of sternum, pleura, venter except last three segments and a triangular area on the sides of each segment below the spiracular line, red. Clothed with fine yellowish and blackish pubescence; dorsum with very fine, short, decurved pubescence; surface coated with very fine reddish, granular excretions.

Holotype: ♀ July 29, 1927, Deadwood, SOUTH DAKOTA (H. H. Knight); author's collection.

Platytylellus rubroscutellatus n. sp.

Suggestive of *persignandus* Dist., but differs at least in having the collar, pronotum, and sternum uniformly black.

♂. Length 5.6 mm., width 2.2 mm. Head: width 1.14 mm., vertex .59 mm. Rostrum, length 2.2 mm., attaining posterior margins of hind coxae. Antennae: segment I, length .50 mm.; II, 1.79 mm., cylindrical, equal in thickness to segment I; III, 1.21 mm.; IV, (broken). Pronotum: length 1.11 mm., width at base 1.78 mm.

Black, opaque, scutellum, base of head (collum) and venter except genital segment and distal margin of the eighth segment, red; basal angles of scutellum usually black. Clothed with black pubescent hairs, yellowish on red area of the venter; coated with fine, white granular excretions.

♀. Length 6.4 mm., width 2.7 mm. Head: width 1.21 mm., vertex .65 mm. Antennae: segment I, length .54 mm.; II, 1.66 mm.; III, 1.15 mm.; IV, .69 mm. Pronotum: length 1.3 mm., width at base 2.1 mm. Similar to the male in coloration, pubescence and granular coating; genital segments black, also the distal half of segments six and seven.

Holotype: ♂ August 1-15, 1916, alt. 6400 ft., Jemez Springs, NEW MEXICO (John Woodgate); author's collection. *Allotype*: same data as the type. *Paratypes*: 3♂ 2♀, taken with the types. ♀ July 12, 2♂ July 15, 1915; ♂ July 7, ♂ July 30, 1919, type locality (J. Woodgate). 2♂ June 22, 1925, Ft.

Wingate, New Mexico. ARIZONA—2 ♂ June 1, 1926, alt. 6000 ft., Chiricahua Mts. (A. A. Nichol). ♂ Aug. 9, 1927, Yavapai Co. (R. H. Beamer). COLORADO—2 ♂ Aug. 7, 1925, Stonewall, near Trinidad (H. H. Knight).

PLATYTYLELLUS RUBROSCUTELLATUS **nigriscutis** n. var.

Similar to the typical *rubroscutellatus* except the scutellum is uniformly black; venter with red as in the typical form.

Type: ♂ July 12, 1915, Jemez Springs, NEW MEXICO (J. Woodgate): author's collection.

When a key is prepared for all the species this form will probably run to a separate couplet, hence the desirability of a varietal name.

PLATYTYLELLUS BIVITTIS **evittatus** n. var.

Perhaps only a variety of *bivittis* Stal, yet it may prove to be distinct. Distinguished from *bivittis* at least in color aspect; pronotum uniformly red without trace of vittae. Color suggestive of *atripennis* Reut., but the pronotum set with prominent, stiff black hairs.

♂. Length 6.6 mm., width 2.1 mm. Head: width 1.19 mm., vertex .64 mm. Rostrum, length 2.12 mm., reaching to base of hind coxae. Antenna: segment I, length .64 mm.; II, 1.98 mm.; III, 1.23 mm.; IV, .72 mm. Pronotum: length 1.24 mm., width at base 1.92 mm.

Color bright red, wings, antennae, frons, tylus, rostrum, mesosternum, legs, and genital segment, black. Pronotum and scutellum set with prominent, stiff black hairs.

Type: ♂, Beaver Valley, UTAH; author's collection.

PLATYTYLELLUS BOREALIS **notatus** n. var.

Structurally very similar to typical *borealis* Kngt., but differs in the median red vitta on pronotum and scutellum, also more broadly red on head and ventral surface.

♂. Length 6 mm., width 2.2 mm. Head: width 1.15 mm., vertex .61 mm. Antennae: segment I, length .65 mm.; II, 1.88 mm.; III, 1.36 mm.; IV, .89 mm. Pronotum: length 1.09 mm., width at base 1.77 mm.

Black, base of head, collar, propleura, median line of pronotum and scutellum, sides of thorax, and venter except the eighth and genital segments, red.

Type: ♂ August 8, 1920, Eddy Co., NORTH DAKOTA (T. H. Hubbell); author's collection.

The Identity of Aphis rubicola Oestlund and Aphis rubiphila Patch (Homop.: Aphididae).*

By J. D. WINTER, University of Minnesota.

Aphis rubicola was described by Oestlund (1887) from specimens collected on the wild red raspberry in Minnesota and *Aphis rubiphila* was described by Patch (1914) from specimens collected on the same host plant in Maine. Both species are recorded as common on the raspberry.

A slide containing three alate viviparous *rubiphila* taken on black raspberry at Wooster, Ohio, was compared to *rubicola* in the Oestlund collection, including the type slide.

Measurements of the Ohio specimens were as follows: antenna, total length, 0.86-0.88, III 0.21, IV 0.13-0.19, V 0.14-0.16, VI 0.07-0.11+0.17-0.21; cornicles, 0.19-0.20; cauda, 0.13; body, 1.33-1.46; fore-wing, 2.15-2.30; width of stigma, 0.12-0.13. Corresponding measurements of three alate viviparous *rubicola* were: antenna, total length, 0.84-0.86, III 0.21-0.23, IV 0.13, V 0.14, VI 0.09-0.11+0.19-0.21; cornicles, 0.16; cauda, 0.11-0.12; body, 1.06-1.22; fore-wing, 1.91-1.98; width of stigma, 0.11-0.13. All specimens examined had 4 to 5 large circular sensoria in a row on III, mostly on distal two-thirds; the cornicles were cylindrical, not reaching tip of cauda; the cauda was conical, with many long hairs; the stigma was elongate, pointed and dusky.

The specimens from Ohio were slightly larger than the type *rubicola* but were within the variation in size found in collected material of *rubicola* in Minnesota. The slide of *rubiphila* was later submitted to Dr. Edith M. Patch to confirm the identification, this confirmation being obtained through the courtesy of Dr. Patch.

From the examination of this material the writer concludes that *Aphis rubicola* Oestlund and *Aphis rubiphila* Patch are identical and that this species should be known as *Aphis rubicola* Oestlund.

Published descriptions of *Cerosipha rubifolii* (Thomas) indicate a very close resemblance of this species to *Aphis rubicola*. Specimens were compared and no significant difference could be found except that *rubifolii* has only 5 antennal segments as described by Thomas (1879). The type slide of *rubifolii* undoubtedly is lost. Dr. C. W. Bennett states, in a letter to the

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writer, that *rubicola* usually will not satisfactorily live and reproduce on any variety of blackberry with which he has worked, while no difficulty is found in this respect with the common blackberry aphid. The blackberry aphid referred to by Bennett (1927) as *Aphis rubi* is undoubtedly *rubifolii* although no material is available for examination. Evidently *rubicola* and *rubifolii* are distinct species.

The writer is indebted to R. B. Wilcox for the slide of *rubiphila*, to Dr. T. L. Guyton for the slide of *rubifolii* and to Dr. O. W. Oestlund for the loan of slides of *rubicola*.

LITERATURE CITED.

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Two New Wasps from North Carolina (Hym.: Cerceridae).

By C. S. BRIMLEY, Ent. Div. N. C. Dept. Agric., Raleigh, North Carolina.

Cerceris zobeide n. sp.

Black; face, base of mandibles, scape beneath, underside of flagel and its apical joint, two large narrowly separated spots on pronotum, tegulae, broad band on scutellum, postscutellum, large spot on each side of propodeum, broad even band on second abdominal segment, very narrow apical bands on segments 3-6, hind coxae, mid and hind trochanters, narrow tips of all femora, line on underside mid femora, base of hind femora, four front tibiae, underside and base of hind tibiae, and all tarsi, reddish yellow, the hind tarsi somewhat darkened above especially toward apex

Clypeus decidedly convex with three blunt, black teeth below; enclosure transversely striate on apical half, obliquely striate on sides at base. Length 9 mm.

In Banks' key to eastern Cerceris (Ann. Ent. Soc. Am. V. 12-15, 1912) this form runs to couplet 19 (males) but is distinguished from all the species to which that couplet leads by the broad reddish band on the scutellum.

Type, male, Raleigh, NORTH CAROLINA, July 28, 1928, C. S. Brimley, collector.

Cerceris zosma n. sp.

Black; large spot on each side of face, spot on base of mandibles, large spot on clypeal process not reaching tip or edges, line on underside of scape, postscutellum, broad band completely divided in middle on second abdominal segment, yellow; tegulae, faint markings at apex pronotum, tips of all femora, narrowest on hind pair, four anterior tibiae and tarsi, lower side and base of hind tibiae, reddish or reddish yellow; hind tarsi mostly dusky; wings slightly smoky, darker at tip, stigma yellow.

Clypeal process erect, about as long as broad, of even width, truncate at tip; enclosure wholly striato-rugose; punctuation moderately coarse, about as in *prominens*. Length 10 mm.

In Banks' key to eastern Cerceris, (females) runs to couplet 3, but can be distinguished from all the species under that couplet by the combination of a rugose enclosure with a wholly unmarked first abdominal segment and a broad but completely interrupted yellow band on the second.

Type, female, Raleigh, NORTH CAROLINA, May 31, 1928, C. S. Brimley, collector.

The types of this and the preceding will be retained for the present in the Entomological Collections of the N. C. Department of Agriculture.

The E. H. Blackmore Collection of Lepidoptera.

The well-known Lepidopterist, Mr. E. H. Blackmore, of Victoria, British Columbia, died March 2, 1929, as noted in the NEWS for May, page 136, with an accompanying portrait. He left a large and carefully mounted and labeled collection of British Columbia Lepidoptera. It contains roughly 180 named species of Butterflies in 900 specimens, 1100 species of Heterocera in 6500 specimens, of which the Micros probably constitute the most important half part. There are, besides these, some 42 named species of *Eupithesia* in about 200 specimens and a large number of unnamed specimens. The collection includes some thirty odd types and cotypes and will be a valuable asset to any museum, as a whole or in parts. His widow is anxious to dispose of it. Parties interested will please address Mrs. F. Blackmore, 2645 Work Street, Victoria, Br. Columbia, and it is suggested that they signify the price they are willing to give, as Mrs. Blackmore is not herself able to properly estimate the value of the collection.

AUGUST BUSCK, U. S. National Museum, Washington, D. C.

Air Routes, German Dirigible "Graf Zeppelin" and Plant Quarantines.

Speed and still more speed is the trend of modern transportation. With more and better roads in all parts of the world and with the increasing number of motors, the more rapid railroads and steamboats, all replacing the pack mules, oxcarts, camels, sailing vessels, slow steamers, etc. of yesterday, the most remote parts of the world are now but a few days' time from our ports. Needless to state, that with this rush against time there is a corresponding increase in the danger of new insect pests and plant diseases being shipped alive and virulent with such plants or plant products as may comprise the cargos, baggage or stores of these carriers.

Now these potential dangers are still more threatening with commercial and private airplane travel. Dr. J. H. Montgomery writes of such new airplane routes bringing new pests from Cuba and South America to Florida and the United States. ("Changed Conditions in Reference to Plant Quarantines", pages 196-204, Monthly Bulletin of the State Plant Board of Florida, XII (10) April 1928.) California has also expressed a fear of the introduction of new pests into that State and the United States via airplane routes from Mexico, Central America, etc. (See page 516, Report of the Bureau of Plant Quarantine and Pest Control; Monthly Bull. of the Dept. of Agric., State of California, XVII (9) Sept. 1928.) Mr. E. R. Sasscer referred to a weekly schedule of three passenger planes between Porto Rico and Haiti (Journal of Economic Entomology, Vol. 21, No. 3, June, 1928).

Still another air vehicle must be considered as a potential carrier of live insect pests and virulent plant diseases new to the United States, namely the dirigible or vessels lighter than air.

Toward dusk of October 15, 1928, the first foreign commercial passenger and cargo carrying dirigible, "Graf Zeppelin," threw a tow line toward the mooring mast at the U. S. Navy Air Station at Lakehurst, N. J. All the details such as inspections made by officials of the U. S. Public Health Service, Immigration Bureau, U. S. Customs and the Plant Quarantine and Control Administrator were undertaken in the same way as on a vessel arriving at an American port from any foreign port. How to treat or dispose of any dangerous fruit or vegetable in the stores of this vessel is an absolutely new problem, especially since these are actually landed on our territory. To destroy all such materials by burning at once would be the only solution. All such provisions on this first trip of the Graf

Zeppelin had been consumed before the vessel reached Lakehurst. On account of the storms encountered and the delays due to strong adverse winds the passengers and crew had been reduced to a diet of canned and preserved food. The cargo was carefully examined by an Inspector of the Plant Quarantine and Control Administration in cooperation with a Customs Examiner but no plants or plant products were found. No plant material was found in the passengers' baggage, but three passengers from Germany had each a bouquet of flowers, one of roses, another of chrysanthemums and still another of carnations. These were found in the passengers' quarters, the cuttings still green though beginning to wither. The first two bouquets were readily abandoned but the owner of the carnations claimed to have brought these to distribute as souvenirs of the flight to American friends and relatives. These, however, were finally abandoned.

Interceptions made from this material were as follows:

Insects	Plant Diseases
Myzus persicae Sulz.	*Heterosporium echinulatum* Berk.
Tritogenaphis sonchi Linn.	Sterile leaf spot, possibly *Septoria chrysanthemi*
Undetermined Aphid	*Sphaceloma rosarum*
Coccinae, possible *Lecanium corni* Bouche	
Thrips tabaci var *pulla*	
Typhlocyba rosae Linn.	
Eggs of sp. of Noctuidae	
Cocoon of Noctuidae	
Undetermined spider	

MAX KISLIUK, JR.,
Associate Plant Quarantine Inspector, Philadelphia, Pa.

Gillette Club Meeting.

On March 28, a banquet in the form of a "surprise party" was held for Dr. C. P. Gillette, in honor of his seventieth birthday, at the Armstrong Hotel. The party was held under the auspices of the Gillette Club, which is an entomological organization composed of students and co-workers of Dr. Gillette. A large number of members was present to celebrate the occasion. Dr. Gillette, in his years of service as Professor of Entomology and State Entomologist at Colorado Agricultural College, has endeared himself to many, and it was felt most fitting to express in this form, our regard for him. The club has planned to have a large oil painting made of Dr. Gillette, to be placed in the hall of the anticipated new science building.

LESLIE B. DANIELS,
Colorado Agricultural College, Fort Collins, Colorado.

List of the Titles of Periodicals and Serials Referred to by Numbers in Entomological Literature in Entomological News.

1. Transactions of The American Entomological Society. Philadelphia.
2. Entomologische Blätter, red. v. H. Eckstein etc. Berlin.
3. Annals of the Carnegie Museum. Pittsburgh, Pa.
4. Canadian Entomologist. London, Canada.
5. Pysche, A Journal of Entomology. Boston, Mass.
6. Journal of the New York Entomological Society. New York.
7. Annals of the Entomological Society of America. Columbus, Ohio.
8. Entomologists' Monthly Magazine. London.
9. The Entomologist. London.
10. Proceedings of the Ent. Soc. of Washington. Washington, D. C.
11. Deutsche entomologische Zeitschrift. Berlin.
12. Journal of Economic Entomology, Geneva, N. Y.
13. Journal of Entomology and Zoology. Claremont, Cal.
14. Entomologische Zeitschrift. Frankfurt a. M., Germany.
15. Natural History, American Museum of Natural History. New York.
16. American Journal of Science. New Haven, Conn.
17. Entomologische Rundschau. Stuttgart, Germany.
18. Internationale entomologische Zeitschrift. Guben, Germany.
19. Bulletin of the Brooklyn Entomological Society. Brooklyn, N. Y.
20. Societas entomologica. Stuttgart, Germany.
21. The Entomologists' Record and Journal of Variation. London.
22. Bulletin of Entomological Research. London.
23. Bollettino del Laboratorio di Zoologia generale e agraria della R. Scuola superiore d'Agricultura in Portici. Italy.
24. Annales de la société entomologique de France. Paris.
25. Bulletin de la société entomologique de France. Paris.
26. Entomologischer Anzeiger, hersg. Adolf Hoffmann. Wien, Austria.
27. Bolletino della Società Entomologica. Genova, Italy.
28. Ent. Tidskrift utgifen af Ent. Föreningen i Stockholm. Sweden.
29. Annual Report of the Ent. Society of Ontario. Toronto, Canada.
30. The Maine Naturalist. Thornaston, Maine.
31. Nature. London.
32. Boletim do Museu Nacional do Rio de Janiero. Brazil.
33. Bull. et Annales de la Société entomologique de Belgique. Bruxelles.
34. Zoologischer Anzeiger, hrsg. v. E. Korschelt. Leipzig.
35. The Annals of Applied Biology. Cambridge, England.
36. Transactions of the Entomological Society of London. England.
37. Proceedings of the Hawaiian Entomological Society. Honolulu.
38. Bull. of the Southern California Academy of Sciences. Los Angeles.
39. The Florida Entomologist. Gainesville, Fla.
40. American Museum Novitates. New York.
41. Mitteilungen der schweiz. ent. Gesellschaft. Schaffhausen, Switzerland.
42. The Journal of Experimental Zoology. Philadelphia.
43. Ohio Journal of Sciences. Columbus, Ohio.
44. Revista chileña de historia natural. Valparaiso, Chile.
45. Zeitschrift für wissenschaftliche Insektenbiologie. Berlin.
46. Zeitschrift für Morphologie und Ökologie der Tiere. Berlin.
47. Journal of Agricultural Research. Washington, D. C.
48. Wiener entomologische Zeitung. Wien, Austria.
49. Entomologische Mitteilungen. Berlin.
50. Proceedings of the U. S. National Museum. Washington, D. C.
51. Notulae entomologicae, ed. Soc. ent. helsingfors. Helsingfors, Finland.
52. Archiv für Naturgeschichte, hrsg. v. E. Strand. Berlin.

53. Quarterly Journal of Microscopical Science. London.
54. Annales de Parasitologie Humaine et Compareé. Paris.
55. Pan-Pacific Entomologist. San Francisco, Cal.
56. "Konowia". Zeit. für systematische Insektenkunde. Wien, Austria.
57. La Feuille des Naturalistes. Paris.
58. Entomologische Berichten. Nederlandsche ent. Ver. Amsterdam.
59. Encyclopédie entomologique, ed. P. Lechevalier. Paris.
60. Stettiner entomologische Zeitung. Stettin, Germany.
61. Proceedings of the California Academy of Sciences. San Francisco.
62. Bulletin of the American Museum of Natural History. New York.
63. Deutsche entomologische Zeitschrift "Iris". Berlin.
64. Zeitschrift des österr. entomologen-Vereines. Wien.
65. Zeitschrift für angewandte Entomologie, hrsg. K. Escherich. Berlin.
66. Report of the Proceedings of the Entomological Meeting. Pusa, India.
67. University of California Publications, Entomology. Berkeley, Cal.
68. Science. New York.
69. Comptes rendus hebdoma. des séances de l'Académie des sciences. Paris.
70. Entomologica Americana, Brooklyn Entomological Society. Brooklyn.
71. Novitates Zoologicae. Tring, England.
72. Revue russe d'Entomologie. Leningrad, USSR.
73. Quarterly Review of Biology. Baltimore, Maryland.
74. Sbornik entomolog. národniho musea v Praze. Prague, Czechoslavokia.
75. Annals and Magazine of Natural History. London.
76. The Scientific Monthly. New York.
77. Comptes rendus heb. des séances et mémo. de la soc. de biologie. Paris.
78. Bulletin Biologique de la France et de la Belgique. Paris.
79. Koleopterologische Rundschau. Wien.
80. Lepidopterologische Rundschau, hrsg. Adolf Hoffmann. Wien.
81. Folia myrmecol. et termitol. hrsg. Anton Krausse. Bernau bei Berlin.
82. Bulletin, Division of the Natural History Survey. Urbana, Illinois.
83. Arkiv för zoologie, K. Svenska Vetenskapsakademien i. Stockholm.
84. Ecology. Brooklyn.
85. Genetics. Princeton, New Jersey.
86. Zoologica, New York Zoological Society. New York.
87. Archiv für Entwicklungs mechanik der Organ., hrsg. v. Roux. Leipzig.
88. Die Naturwissenschaften, hrsg. A. Berliner. Berlin.
89. Zoologische Jahrbücher, hrsg. v. Spengel. Jena, Germany.
90. The American Naturalist. Garrison-on-Hudson, New York.
91. Journal of the Washington Academy of Seiences. Washington, D. C.
92. Biological Bulletin. Wood's Hole, Massachusetts.
93. Proceedings of the Zoological Society of London. England.
94. Zeitschrift für wissenschaftliche Zoologie. Leipzig.
95. Proceedings of the Biological Soc. of Washington, Washington, D. C.
96. La Cellule. Lierre, Belgium.
97. Biologisches Zentralblatt. Leipzig.
98. Le Naturaliste Canadien. Cap Rouge, Chicoutimi, Quebec.
99. Mélanges exotico-entomologiques, Par Maurice Pic. Moulins, France.
100. Bulletin Intern., Académie Polonaise des Sci. et des Lett. Cracovie, Poland.
101. Tijdschrift voor entomologie, Nederlandsche Entomol. Ver., Amsterdam.
102. Entomologiske Meddelelser, Entomologisk Forening, Copenhagen.
103. Journal of the Kansas Entomological Society, Lawrence, Kansas.

Entomological Literature

COMPILED, WITH THE ASSISTANCE OF "BIOLOGICAL ABSTRACTS," UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The numbers **within brackets** [ ] refer to the journals, as numbered in the list of Periodicals and Serials published in the January and June numbers (or which may be secured from the publisher of Entomological News for 10c), in which the paper appeared. The number of, or annual **volume**, and in some cases the part, heft, &c. the latter **within** ( ) follows; then the pagination follows the **colon** :

All continued papers, with few exceptions, are recorded only at their first installments.

•Papers containing new forms or names have an • preceding the author's name.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

☞*Note the change in the method of citing the bibliographical references, as explained above.*

Papers published in the Entomological News are not listed.

GENERAL.—Arribálzaga, F. L.—Biografía. [Rev. Soc. Ent. Argentina] 3 No. 6: 5-12, ill. **Aurivillius, O. C.**—In memoriam. [51] 8: 110-113. **Berger, J. F.**—Obituary. [64] 14: 13-15. **Brues, C. T.**—Present trends in systematic entomology. General discussion. [5] 36: 13-20. **Chapman, R. N.**—The potentialities of entomology. [68] 69: 413-418. **Cockerell, T. D. A.**—Insects flying to ships. [31] 123: 528. **deJoannis, J.**—Quelle importance faut-il attacher à l'examen des "types"? [Lambillionea] 29: 34-38. **Forbes, W. T. M.**—Present trends in systematic entomology. Scientific names. [5] 36: 21-27. **Herms, W. B.**—The experimental method as applied to entomological investigations. [12] 22: 45-61. **Ingles, L. G.**—The seasonal and associational distribution of the fauna of the upper Santa Ana River Wash. [13] 21: 1-48, ill., cont. **Johnson, C. W.**—Meeting place of the insects. [Nat. Mag.] 13: 333-335, ill. **Lutz, F. E.**—Experiments with "Wonder Creatures". [15] 1929: 160-168, ill. **Maack, C. J.**—Beifütterung von Jod an Raupen. [26] 9: 100-101. **Pic, M.**—De l'utilité des noms pour les variétés. [25] 1929: 80-82. **Reverdin, J. L.**—Obituary. [9] 62: 93-96. **Reverdin, J. L.**—Ein nachruf. [18] 23: 13-18. **Smith, R. C.**—The tray system for insect collections. [Trans. Kansas Acad. Sci.] 31: 77-80, ill. **Strand, E.**—Schach dem typenkult! [Ent. Nachricht.] 11: 61-63. **Thompson, W. R.**—On the relative value of parasites and

predators in the biological control of insect pests. [22] 19: 343-350.

ANATOMY, PHYSIOLOGY, ETC. — **Davidson, J.** — On the occurrence of the parthenogenetic and sexual forms in Aphis rumicis with special reference to the influence of environmental factors. [35] 16: 104-134, ill. **Denis, J. R.**— Études sur l'anatomie de la tête de quelques Collemboles suivies de considérations sur la morphologie de la tête des insectes. [Arch. Zool. Exp. Gen., Paris] 68: 291pp., ill. **Faber, A.**—Die lautäusserungen der Orthopteren. (Lauterzeugung, lautabwandkung und deren biologische bedeutung sowie tonapparat der geradflügler.) vergleichende untersuchungen I. [46] (A). 13: 745-803, ill. **Fischel, W.**— Wachstum und häutung der spinnen. I. Mitteilung: Studien an retitelen spinnen. [94] 133: 441-469, ill. **Gadeau de Kerville, H.**—Action de différentes substances chimiques et de températures élevées sur les couleurs métalliques de quelques Coléopteres. [25] 1929: 73-76. **Handschin, E.**—Praktische einführung in die morphologie der insekten ein hilfsbuch für lehrer, studierende und entomophile. [Samml. Nat. Praktika] 16: 112pp., ill. **Jeschikov, J.**—Zur frage über die entstehung der vollkommenen verwandlung. [89] 50: 601-652. **Kästner, A.**—Bau und funktion der fächertracheen einiger spinnen. [46] (A) 13: 463-558, ill. **Keeler, C. E.**—Thelytoky in Scleroderma immigrans. [5] 36: 41-44, ill. **Martini & Achundow.**—Versuche über farbenanpassung bei Culiciden. [34] 81: 24-44, ill. **Masing, R.**—Die vererbung der quantitativen merkmale bei Drosophila melanogaster. [Trav. Soc. Nat. Leningrad] 58: 41-43. **McArthur, J. M.**—An experimental study of the functions of the different spiracles in certain Orthoptera. [42] 53: 117-128. **McIndoo, N. E.**—Tropisms and sense organs of Lepidoptera. [Smiths. Misc. Coll.] 81: 59pp., ill. **Mitrofanova, J.** —On the growth of the head in the larva of Anopheles maculipennis. [22] 19: 361-366, ill. **Muir, F.**—The tentorium of Hemiptera considered from the point of view of the recent work of Snodgrass. [8] 65: 86-88. **Pulikowsky, N.** Die respiratorischen anpassungserscheinungen bei den puppen der Simuluden. [46] 13: 655-664, ill. **Ripper, W.**—Die puppen der beiden knospenwickler. [64] 14: 18-21, 25-28, ill. **Roubaud, E.**—Caractére obligatoire de l'hibernation chez les reines de Vespides annuels. Consequences biologiques. [25] 1929: 83-84. ***Sacharov. P.**—

Contributions à l'étude de la transmission héréditaire de la forme du corps chez la Musca domestica, réduite sous l'influence d'inanition des larves. [Comptes Rendus, Acad. Sci. U. S. S. R.] 1928: 5. **Samtleben, B.**—Zur kenntnis der histologie und metamorphose des Mitteldarms der stechmückenlarven. [34] 81: 97-109, ill. **Saveliev, V.**—On the manifold effect of the gene vestigial in Drosophila melanogaster. [Trav. Soc. Nat. Leningrad] 58: 85-88. **Schwarz, I.**—Untersuchungen an mikrosporidien minierender schmetterlingsraupen, den "Symbionten" Portiers. [46] (A) 13: 665-705, ill. **Stegemann, F.**—Ist die insektenkutikula wirklich einheitlich gebaut? Untersuchungen an Cicindeliden. [89] 50: 571-580, ill. **Teodoro, G.**—Apparati di uncinamento negli omotteri ["Redia"] 16: 139-144, ill. **Thienemann, A.**—Chironomiden-metamorphosen. II. Die sectio Tanytarsus genuinus. [Archiv für Hydrobiologie, Stuttgart] 20: 93-119, ill. **Weber, H.**—Kopf und thorax von Psylla mali (Homoptera). Eine morphogenetische studie. [46] 14: 59-165, ill.

ARACHNIDA AND MYRIOPODA. — Chamberlin & Woodbury.—Notes on the spiders of Washington County, Utah. [95] 42: 131-141, ill. **Mello-Leitão.**—Oxyopideos do Brasil. [Rev. Mus. Paulista, Sao Paulo] 16: 491-536, ill. Mometideos do Brasil. [Rev. Mus. Paulista] 16: 539-568, ill. ***Mello-Leitão.**—Hersiliideos da America tropical [32] 4: 43-46. ***Mello-Leitão.**—Novas notas arachnologicas. (S). [32] 4: 49-54, ill. **Newcomer & Yothers.**—Biology of the European red mite in the Pacific Northwest. [U. S. Dept. Agric.] Tech. Bull. 89, 1929: 70pp., ill.

THE SMALLER ORDER OF INSECTS.—*Ewing, H. E.—Notes on the Siphonapteren genus Catallagia, including the description of a new species. [95] 42: 125-127. ***John, O.**—A new Frankliniella (Thysanoptera) from Brazil. [33] 68: 152-154, ill. ***Moulton, D.**—New California Thysanoptera. [55] 5: 125-136. **Pearman, J. V.**—Additional notes on psocid biology (Oviposition). [8] 65: 89-90. **Schoenemund, E.**—Ueber die larven der ephemeropterengattung Chitonophora. [48] 45: 158-163, ill.

ORTHOPTERA.—Arlington, L. C.—Cricket culture in China. [China Jour.] 10: 135-142, ill. ***Caudell, A. N.**—Cocconotus schunkei, new name [for C. similis Caudell] (Tettigoniidae: Pseudophyllinae). (S). [10] 31: 64. ***Hubbell, T. H.**—Two new species of Ceuthophilus from the southeast-

ern United States. [39] 13: 8-20, ill. ***Rehn, J. A. G.**—Studies in Costa Rican Dermaptera and Orthoptera. Paper two. New genera and species of Acrididae. [1] 55: 9-77, ill.

HEMIPTERA.—Borgmeier, T.—Sobre um casulo curioso de um Copeognato brasileiro. (S). [32] 4: 59-65, ill. **Hagmann, G.**—A larva da Laternaria phosphorea. (S). [32] 4: 1-6, ill. ***Jensen-Haarup, A. C.**—Hemipterological notes and descriptions V. (S). [Ent. Meddel.] 16: 185-202. ***Knowlton, G. F.**—A new juniper aphid from Utah with notes on a few other species. Part II. [39] 13: 4-8, ill. **Lawson, P. B.**—Concerning Cicadella hieroglyphica var. dolobrata (Cicadellidae). [4] 61: 69-70. **Lawson, P. B.**—Leafhoppers and the trap light. [Jour. Kansas Ent. Soc.] 2: 39-47, ill. ***Lundblad, O.**—Beitrag zur kenntnis der Corixiden. (S). [28] 49: 219-242, ill. ***Lundblad, O.**—Monographie der bis jetzt bekannten arten der neotropischen Corixidengattung Heterocorixa. [28] 49: 66-83, ill. **Lundblad, O.**—Zur kenntnis dreier wenig bekannter amerikanischer Corixiden. (S). [34] 80: 193-204, ill. ***Lundblad, O.**—Neue und wenig bekannte Corixiden. (S). [Ent. Meddel.] 16: 277-304, ill. **Metcalf & Barber.**—Notes on Aphrophora salicis in America. [5] 36: 51-56, ill. ***Tissot, A. N.**—A new dogwood aphid from Florida. [39] 13: 1-4, ill.

LEPIDOPTERA.—Briand, L. J.—Laboratory breeding of the European corn borer (Pyrausta nubilalis) with special reference to equipment and cages. [4] 61: 51-54, ill. ***Bryk, F.**—Ueber die amimetischen weibchen von Perrhybris lypera. (S). [20] 44: 14-15, ill. ***Chermock, F. H.**—Notes on North American Lepidoptera. [19] 24: 20-21. **Clark, A. H.**—On certain forms of common American butterflies. [5] 36: 28-33. **Clark, A. H.**—The butterflies of the District of Columbia. [Explor. & Field Work Smiths. Inst. 1928] 1929: 101-108, ill. **Clark, A. H.**—Preliminary list of the butterflies of the District of Columbia. [95] 42: 113-116. ***Heinrich, C.**—Notes on some North American moths of the subfamily Eucosminae. [50] 75, Art. 8: 23pp., ill. **Kaye & Lamont.**—A catalogue of the Trinidad Lepidoptera Heterocera. [Mem. Dept. Agric. Trinidad & Tobago] 1927: 144pp., ill. **Lederer, G.**—Lebende Morpho laertes (=epistrophis) und Morpho hercules in der insektenabteilung des Frankfurter Aquariums. (S). [18] 22: 445-451, ill. ***McDunnough, J.**—Synonymic notes on Canadian Eupithecias (Geomet.). [4] 61: 59-69, ill. **McDunnough, J. H.**—Argyn-

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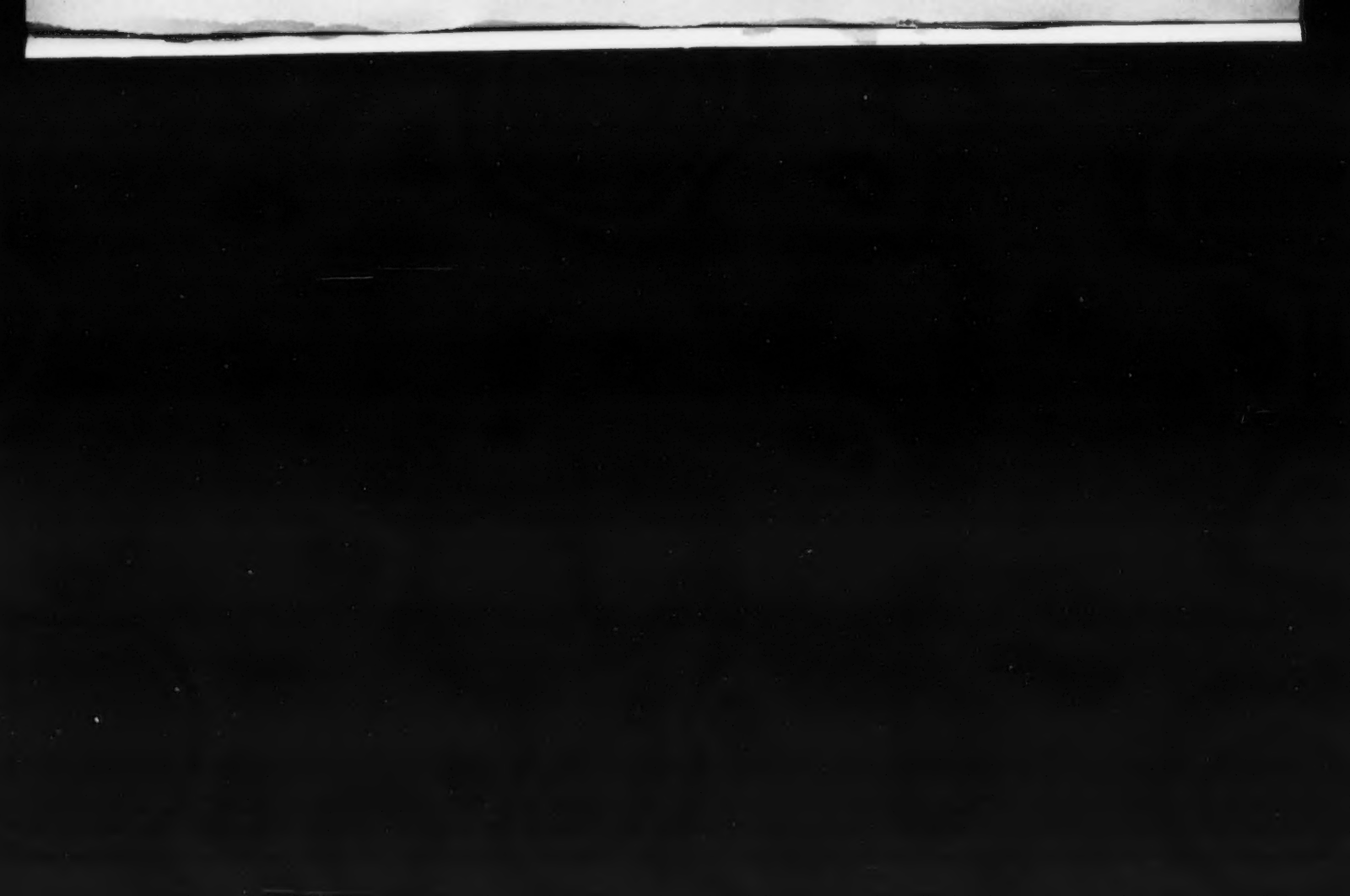

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